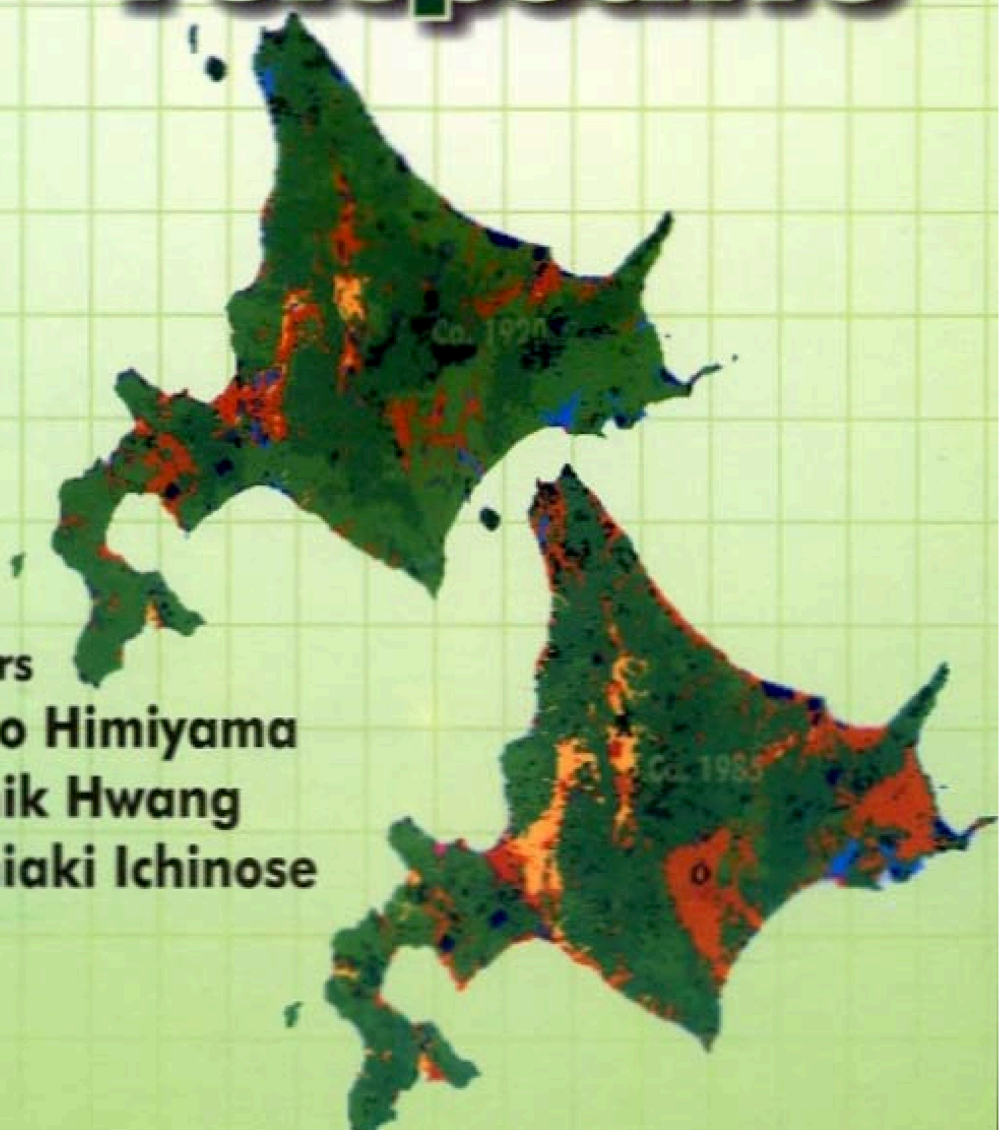
Land-use Changes in Comparative Perspective



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Spatial Pattern of Suburbanization and Land-Use Change Process: Case Study in Jakarta Suburb

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1. INTRODUCTION

In the last three decades, Indonesia has been facing two dominant trends in land-use/cover change, namely deforestation and urbanization/suburbanization. Indonesia has about 144 million ha of tropical forest, the second largest forest expanse after Brazil and about 10% of the entire tropical forest of the world. Forest products are significant in Indonesia's economy. However, the monumental timber trade is poorly regulated and ultimately leads to species extinction as well as climatic changes and disruption of the hydrological cycle. It also contributes significantly to the global greenhouse effect.

Urbanization/suburbanization has been expanding, mainly by conversion of land from agriculture to urban uses, especially in cultivated areas around major cities. Then their high contribution to economic growth, development of urban areas has been given top priority in regional development during the last 30 years. The government loosened the guidelines for location of foreign investment.

Like urbanization trends in many other countries, the pattern of urbanization in Indonesia reveals two dominant trends. First, on the national scale, an increasing concentration of people and production in one or relatively few places in the form of large metropolitan agglomerations. The ultimate form of this process is the megalopolis. However, the pace of transformation is dangerous, lacking as it does the capital and physical resources and sometimes even the necessary experience and skills. Second, in the metropolitan regions per se, the trend is inverted. The more affluent classes are moving into the surrounding countryside to escape the social and environmental consequences of excessive concentration—physical congestion and breakdown of urban services and amenities. Nevertheless, in both cases, the population and activities in the metropolitan regions continue to grow, although their central cities may be waning and losing both.

Studies carried out in Asia, Latin America, and Africa in the early 1980s found that towns in densely settled rural regions located away from metropolitan and frontier regions were growing roughly equal to natural population growth, indicating that employment creation for the hinterland labor force was close to nil in most cases (Matheur, 1982; Kammeier and Swan, 1984).

Suburbanization is a process involving the systematic growth of fringe areas at a more rapid rate than core cities and a lifestyle involving daily commuting to jobs in the city. Significantly different from urbanization and suburbanization processes in the USA and Europe, recent studies in Asian countries have stressed that the continuing outward expansion of the biggest metropolitan regions has eroded the longstanding distinction between rural and urban. The demographic magnitude of urban transformation in Asia is unusual, due to rapidly expanding urban systems within a densely populated countryside. This trend has been driven by economic expansion and has resulted in extended areas of mixed land use on city peripheries.

The notion of a rural–urban continuum has recently passed out of use, mainly because there no longer seem to be significant differences between urban and rural ways of life. It has gradually become clear that a dichotomy between urban and rural societies is more contrived than actual. Furthermore, McGee (1987) argued the Asian variation of the usual pattern of suburbanization is distinctive and termed *desakota*. A *desakota* region is a complex entity. It encompasses both the city itself, with typical urban land use, and associated compact and densely settled sprawling areas closely enmeshed with the urban economy. During this process the countryside is urbanized without the hinterland population necessarily moving into the city. Rural economics and lifestyles become submerged under the expansion of urban economic activity and culture but do not disappear altogether. This idea of *desakota* seeks to identify characteristic regions of Asia that are neither urban nor rural and to combine some features of both regional types into a continuously changing symbiotic relationship. McGee describes *desakota* regions as agricultural areas that have undergone an intense mix of settlement and economic activity, comprising agriculture, industry, housing development, and other land use.

This article describes the processes of urbanization and suburbanization in the Jakarta metropolitan or so-called Jabotabek region, mainly influenced by in- and out-migration as well as natural growth. A distinctive spatial pattern of many aspects of socioeconomic activities has evolved in the region.

2. GENERAL TREND OF URBANIZATION/SUBURBANIZATION IN INDONESIA

Urbanization as a general physical phenomenon is quite recent in Indonesia. In 1930, only 7.5% of the total population lived in cities and towns. In 1961, 15% of the Indonesian population lived in cities and towns. Population growth and urbanization in Indonesia since the end of World War II have resulted primarily from a slowly declining birth rate and rapidly declining death rate. Urban growth is mainly caused by the push factor of insecurity in rural areas. Many related studies show that a rapidly growing rural population in a country exceeding its limit and resources of support continues to provide a "rural push" which is far greater than the "urban pull" exerted by social and cultural amenities and economic opportunity.

In the early stage of urbanization in Indonesia, the push factor from rural areas, especially in Java, could not find a complementary pull factor in urban areas, in the sense of a demand for an industrial labor force. In fact, however, this overemployment greatly disguises an unemployment not officially registered. So, the conclusion has to be that the push factor towards urbanization, caused by the unemployment in rural areas, does not actually find a real complement in a pull factor, consisting of demand for a labor force. Nevertheless these push factors are at work, prompting cityward migration, because many villagers firmly hope to believe they will find better opportunities in the city.

Over the last three decades there have been some interesting and not always anticipated shifts in urbanization patterns. From 1961 to 1971 the average city growth amounted to 3.6% per year, of which 68% resulted from natural increase while the remaining 32% was the result of net migration. From 1971 to 1980, the average rate of city growth was 4.0% per year, of which 48% was attributable to natural increase and 52% to net migration. In 1980, the total population living in urban areas (cities and towns) reached 22.3% of the total population. From 1980 to 1990, the average rate of city growth increased to 5.37% per year and the urban population reached 30.9% of the total population, but between 1990 and 1995, it fell to 4.8% per year while the population lived in urban areas reached 35.9% of the total population. Due to such trends, it is believed that the future demographic structure of Indonesia will be characterized more by population mobilization and the urbanization process than by population growth and birth-control problems.

3. GROWTH OF JABOTABEK REGION (Figs. 3.1 and 3.2)

Table 3.1 shows the negative trends in fertility rate of Jakarta City as well as at the national level. It can be seen that the fertility rate of Jakarta City is decreasing faster than the national average. The growth rate of Jakarta has thus slowed down since the 1970s. Between 1971 and 1980 it grew at 3.9% per year, but between 1980 and 1990 fell to 3.1% per year and between 1990 and 1995 to 2.1%. The growth rate of the urban population within the boundaries of Jakarta has thus slowed down but much new growth is concentrated just outside the city boundaries. The development of Jakarta's suburbs is the result of the suburbanization process, especially through the expansion of new housing and industrial areas. This is because the urban areas of Botabek[1] region are absorbing more than their share of the city (Jakarta City) growth, due mainly to the accelerated growth of Tangerang and Bekasi in the period of 1981–1991. This hinterland zone grew by 70% between 1981 and 1991 (Table 3.2).

Table 3.1

Trends in total fertility rate (TFR) of Jakarta City and the national level

Fertility Rate	*Period*					
	1967–1970	*1971–1975*	*1976–1979*	*1981–1984*	*1986–1989*	*1991–1994*
TFR of Jakarta	5,175	4,780	3,990	3,250	2,326	1,925
TFR Growth of Jakarta		−7.6	−16.5	−18.6	−28.4	−17.2
TFR of Indonesia	5,605	5,200	4,680	4,055	3,326	2,802
TFR Growth of Indonesia		−7.2	−10.0	−13.4	−18.0	−15.8

Note: TFR is number of births for every 1,000 women.

[1] Jabotabek is the Jakarta metropolitan region which consists of the following local administrations: Jakarta, Bogor, Tangerang, and Bekasi. Whereas Bogor, Tangerang, and Bekasi administratively belong to the province of West Java, located within the immediate vicinity of Jakarta (the hinterland of Jakarta), Botabek is the same region minus Jakarta City.

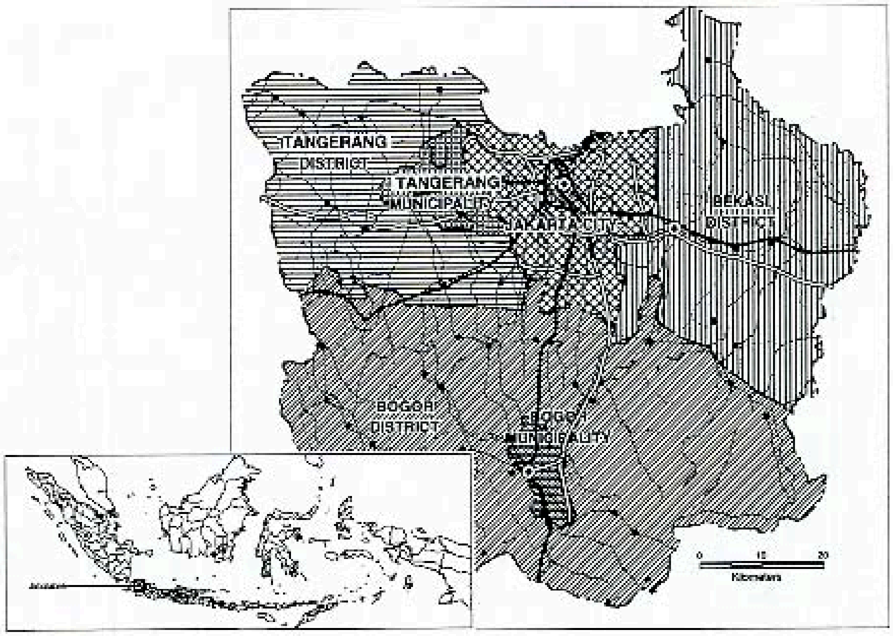

Fig. 3.1 Jabotabek Region.

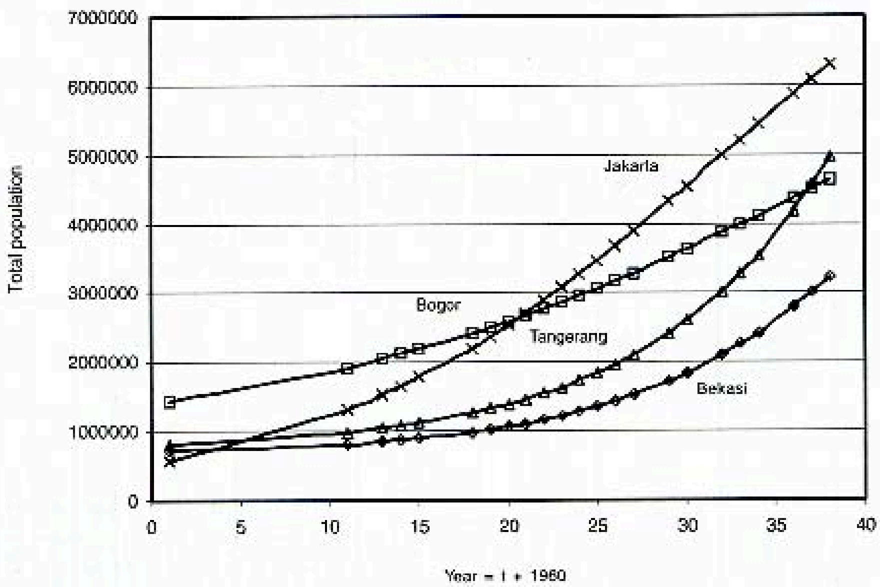

Fig. 3.2 Population growth curves of Jakarta, Bogor, Tangerang and Bekasi from 1960 to 1998.

Table 3.2

Population and population density of Jabotabek Region 1960-1995

Year	Indicator	Unit	Jakarta I	BOTABEK (II) Bogor	Tangerang	Bekasi	Total II	Total JABOTABEK I + II
	Population		2,906,533	1,468,248	850,390	692,817	3,011,455	5,917,988
1961	Population Density	pop/km²	4,909.68	486.17	641.80	433.01	506.55	905.31
	Area	km²	592	3,020	1,325	1,600	5,945	6,537
	Population		4,576,009	1,864,652	1,066,695	830,721	3,762,068	8,338,077
1971	Population Density	pop/km²	7,795.59	617.43	805.05	519.53	632.92	1276.69
	Area	km²	587	3,020	1,325	1,599	5,944	6,531
	Population		6,503,227	2,741,013	1,529,072	1,147,516	5,417,601	11,920,828
1980	Population Density	pop/km²	9,883.32	907.32	1,154.02	893.70	962.27	1,895.81
	Area	km²	658	3,021	1,325	1,284	5,630	6,288
	Population		9,456,477	4,038,806	2,764,988	2,104,392	8,908,186	18,364,663
1990	Population Density	pop/km²	14,306.32	1,195.27	1,976.40	1,418.05	1,422.58	2,652.70
	Area	km²	661	3,379	1,399	1,484	6,262	6,923
	Population		9,160,500	4,716,784	3,771,526	2,720,174	11,208,484	20,368,984
1995	Population Density	pop/km²	13,858.55	1,362.05	2,939.61	1,833.00	1,799.11	2,955.88
	Area	km²	661	3,463	1,283	1,484	6,230	6,891
1961–1971 pop growth		%	**57.4**	27.0	25.4	19.9	24.9	40.9
1971–1980 pop growth		%	42.1	47.0	43.3	38.1	44.0	43.0
1980–1995 pop growth		%	40.9	**72.1**	**146.7**	**137.0**	**106.9**	70.9

Jakarta City had a population of 9.6 million in 1999. The urban facilities and infrastructure of Jakarta have largely supported industrial activity growth in Bogor, Tangerang, and Bekasi. The growing concentration of socioeconomic activities in Jakarta and its surrounding areas has attracted many people, particularly from rural areas, to the metropolitan region. All the districts surrounding Jakarta City have experienced population increases. During the period 1971–1980 there was a gradual shift of population growth from Jakarta City to its suburbs but the population growth of Jakarta and its suburbs remained almost the same. During the period 1980–1995 the population growth of Botabek region surpassed that of Jakarta City.

The dynamics of spatial variation in population distribution in Jabotabek region correlates strongly with spatial variation in economic growth. Table 3.3 shows the current status (1990, 1993 and 1996) of population, administrative area, and economic growth of Jabotabek region. During 1990–1996, Tangerang and Bekasi were the most dynamic areas in the region; their population and economic growth reached more than 4% and 20% per year respectively, the highest in the country.

4. MIGRATION TO JAKARTA

Concerning the major determinants of migration from rural area to urban area, many scholars try to distinguish the determinants as pull factors (from the urban area) and push factors (from the rural) (Jansen and Paelinck, 1981; Mazumdar, 1987; Kaida, 1992), along with improvements in communication between rural and urban areas (Jansen and Paelinck, 1981). The main pull factor is expectation of better chances of income improvement or wage (Jansen and Paelinck, 1981; Mazumdar, 1987). The main push factors are conditions in the rural area due to overpopulation and low agricultural productivity (Kaida, 1992). Strong push and weak pull in Asian countries caused rapid growth of the urban informal sector which resulted in expanded slums around big cities (Kaida, 1992).

Almost all migration research in developed and developing countries comes to the strong conclusion that the net effect of migration is an increase in income of migrants on average and that gross migration flows are very sensitive to income differences. Migration is a response of individuals to better opportunities and should in principle increase economic welfare unambiguously. Apparently, population change is closely related to employment change, industrialization is a driving force in the early stages of urbanization, and service employment takes over the mantle of employment generation in the

Table 3.3

General description of Jabotabek Region

Region	Indicator	Year			Growth (%/year)
		1990	1993	1996	1990–1996
Jakarta I	Number of desa	260	265	265	
	Number of kecamatan	43	43	43	
	Total area (km^2)	661.26	661.26	661.26	
	Population (1000)	7,108.36	7,395.00	7,625.79	1.18
	Population density	10,750.00	11,217.00	11,526.00	1.17
	GDRP (Rp. billion)	13,664.72	51,106.46	66,164.80	8.64
	GDRP/capita (Rp. 1000)	1,922.35	6,910.95	8,676.45	7.37
	GDRP/km^2 (Rp. mill)	20,664.67	77,286.48	100,058.68	8.64
Bogor II	Number of desa	552	552	555	
	Number of kecamatan	34	39	40	
	Total area (km^2)	3,366.43	3,462.28	3,553.46	
	Population (1000)	3,991.84	3,932.04	5,122.55	1.05
	Population density	1,185.78	1,135.68	1,441.57	0.17
	GDRP (Rp. billion)	1,862.58	5,378.24	7,510.75	5.79
	GDRP/capita (Rp. 1000)	466.60	1,367.80	1,466.21	4.83
	GDRP/km^2 (Rp. mill)	553.28	1,553.38	2,113.64	4.91
Tangerang III	Number of desa	360	395	395	
	Number of kecamatan	21	25	25	
	Total area (km^2)	1,398.57	1,407.60	1,414.08	
	Population (1000)	2,764.99	3,352.77	3,624.14	4.69
	Population density	1,977.01	2,381.91	2,562.90	4.49
	GDRP (Rp. billion)	1,179.42	4,438.16	10,055.04	21.38
	GDRP/capita (Rp. 1000)	426.56	1,323.73	2,774.46	16.00
	GDRP/km^2 (Rp. mill)	843.31	3,153.00	7,110.66	21.13

(Contd.)

Region	Indicator	Year			Growth (%/year)
		1990	1993	1996	1990–1996
Bekasi IV	Number of desa	237	237	237	
	Number of kecamatan	20	22	22	
	Total area (km^2)	1,484.37	1,484.37	1,484.37	
	Population (1000)	2,104.39	2,159.87	2,944.15	6.02
	Population density	1,417.70	1,455.07	1,983.44	6.02
	GDRP (Rp. billion)	808.81	4,359.19	8,915.83	26.42
	GDRP/capita (Rp. 1000)	384.34	2,018.27	3,028.32	19.10
	GDRP/km^2 (Rp. mill)	544.88	2,936.73	6,006.47	26.42
	Rice field land ratio	0.46	0.45	0.41	
BOTABEK (I+III+IV)	Number of desa	1,149	789	1,187	
	Number of kecamatan	75	86	87	
	Total area (km^2)	6,249.37	6,354.25	6,451.91	
	Population (1000)	8,861.22	9,444.68	11,690.84	3.39
	Population density	4,580.49	4,972.66	5,987.90	3.87
	GDRP (Rp. billion)	3,850.81	14,175.59	26,481.62	15.97
	GDRP/capita (Rp. 1000)	434.57	1,500.91	2,265.16	12.16
	GDRP/km^2 (Rp. mill)	616.19	2,230.88	4,104.46	15.38

Note: Indonesia is administratively divided into 27 provinces. A province is subdivided into several districts. There are three types of districts: *kabupaten* (district), *kodya* (municipality), and *kota administratif* (administrative municipality). A district is subdivided into several *kecamatans* (subdistricts), and a kecamatan consists of several *desas* or *kelurahans* (villages). Kabupaten and kotamadya are administrative units at the same hierarchy. Kabupaten (district) normally covers a wider area than kotamadya, and rural areas dominate the region. Kotamadya (municipality) is dominated by urban areas, corresponding to the status of *Shi* in Japan.

later stages although it may not be sufficient to stem total employment decline (Drewett and Rossi, 1981; Mazumdar, 1987).

The lack of employment in the primary sector (agriculture) and industrial sector in rural areas causes a strong push factor. The effect is that many migrants forced to enter the tertiary sector of trade, service and transport, characterized by a structural over-employment. In the meantime, powerful social pull factors are working from the towns, but still more from the cities, because the poor villager hopes to find a new and better way of life.

Leaf (1994) pointed out factors which support the trend of recent and rapid growth of suburban enclave housing in Jabotabek region, namely ideology (the political necessity of building a modern city) and economics (expansion of the corporate sector housing development). In the 1970s the local government of Jakarta City declared the city closed to migrants in an attempt to control the city's population growth. The policy was totally ineffective. Figures 3.3 and 3.4 show the distribution of in-migration flow to five districts within Jakarta City. In-migration flows peaked in the period 1982–1992. Migration to South and East Jakarta Districts predominate with the total number of in-migrants in both areas reaching almost 64% of the total number of migrants to Jakarta during 1976–1998. Central Jakarta lost its attractiveness as a migration destination earlier than the other districts of the city. Most of the districts lost their attractiveness from about the beginning of the 1990s. Since then the destination of in-migration has shifted to the suburbs of Jakarta City (Botabek region).

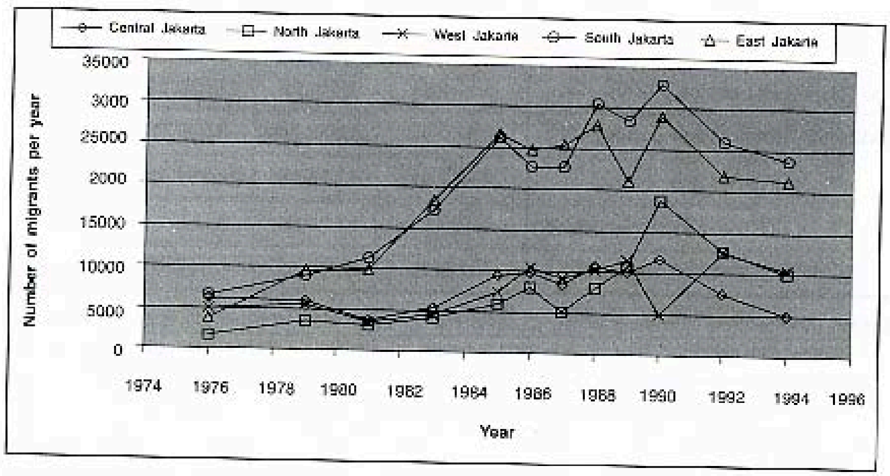

Fig. 3.3 Migration flow to five districts in Jakarta City, from 1975 to 1994.

Table 3.4 shows the characteristics of in-migrants of Jakarta City in 1995. The lower class (in terms of economic and education level) and younger generation (age group of 10–29) predominated with females outnumbering males. Female migrants were mostly older than males and most of the migrants were motivated by economics. About 71% of the migrants are economically active and working (91.9%), but several studies have shown a significant percentage of disguised unemployment with informal service sectors the main occupation.

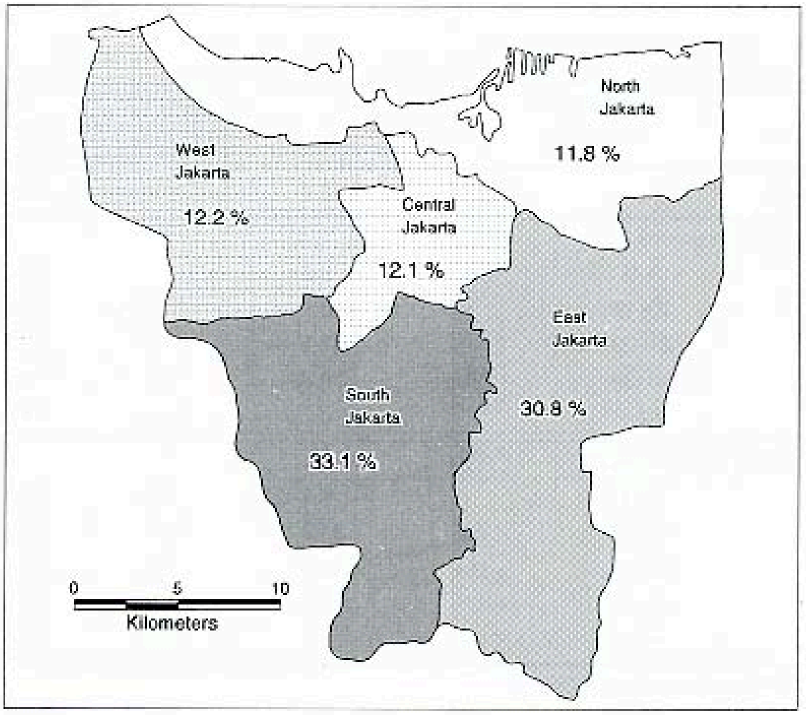

Fig. 3.4 Distribution of total in-migrants to five districts of Jakarta City (%).

According to the 1990 statistics for Jakarta City, and in spite of a relatively high population growth, out-migration outpaced of in-migration (Table 3.5). During the period 1990–1995, the gap between out-migration and in-migration for Jakarta City widened, with the former at 823,045 (9.0% of Jakarta's population) and the latter 594,542 (6.5%). Throughout this decade the population growth for Jakarta City was 2.1% per year, down from the 3.1% growth experienced in the previous decade. Despite steady overall growth in the population of Jakarta City, Central Jakarta District experienced negative growth (–1.4%) in the period 1980 to 1990, while the population of Jakarta City's other districts continued to increase. The decrease in population in the center of Jakarta is attributable to out-migration.

5. SUBURBANIZATION AND LAND-USE CHANGE

The flows of local migration from Jakarta City to its surrounding areas have not been followed by sufficient work place shifting, and this caused traffic congestion for commuter routes between Jakarta and its surrounding areas.

Table 3.4

Characteristics of migrants and nonmigrants in Jakarta City in 1995

Indicator	*Jakarta City*		
	Migrant	*Nonmigrant*	*Total*
% Male	43.7	50.6	50.1
Male by age groups (%)			
0–9	5.5	18.3	17.6
10–19	18.1	21.8	21.6
20–29	**47.1**	21.3	22.7
30–39	**20.7**	16.3	16.5
40 +	8.7	22.3	21.5
Female by age groups (%)			
0–9	4.0	17.9	17.0
10–19	**33.3**	22.4	23.2
20–29	**44.5**	22.5	24.1
30–39	11.9	16.4	16.1
40 +	6.3	20.8	19.7
Population by age groups (%)			
0–9	4.7	18.1	17.2
10–19	**26.7**	22.1	22.4
20–29	**45.6**	21.9	23.4
30–39	15.7	16.3	16.3
40 +	7.4	21.5	20.6
Attending school (%)	**12.5**	31.9	30.6
No longer attending school (%)	**84.8**	63.4	64.9
Never attended/did not complete Primary School	16.2	24.1	23.5
- Completed Primary School	**31.8**	24.2	24.7
- Junior High School	17.9	18.4	18.4
- Senior High School	27.2	26.3	26.4
- More than High School	6.8	7.1	7.0
Illiteracy rate (%)	2.6	4.6	4.5
Economically active (%)	**70.7**	46.9	48.9
- working	**91.9**	87.5	88.0
- looking for work	8.1	12.5	12.0

(Contd.)

(Table 3.4 Contd.)

Indicator	*Jakarta City*		
	Migrant	*Nonmigrant*	*Total*
Occupation (%)			
- Professional/managerial	5.7	10.9	10.3
- Clerical workers	9.0	17.7	16.8
- Sales workers	20.6	26.4	25.8
- Service workers	**34.3**	12.4	14.9
- Agricultural workers	0.6	1.0	0.9
- Production workers	29.0	30.3	30.2
- Others	0.7	1.2	1.2
Total	99.9	99.9	100
Reason to move (%)			
- Occupation	22.5		
- Looking for work	32.4		
- Following family/relative	36.4		
- Others	8.7		

Table 3.5

Recent migration statistics for Jakarta in 1980, 1990 and 1995

Migration Type	*Year*		
	1980	*1990*	*1995*
In-migration	746,903	819,571	594,542
Out-migration	382,326	993,377	823,045
Net-migration	364,577	−173,806	−228,503

Recent migration: people who migrated in the proceding five-year period.

According to a study in one of the Jakarta suburbs, Bekasi District, by Rustiadi three stages of the suburbanization process can be identified in the Jakarta Metropolitan, namely: (1) presuburbanization process, (2) first stage of suburbanization, and (3) second stage of suburbanization (Rustiadi 1999). These stages were determined from characteristics of the spatial distribution patterns of the population and of urban and rice field areas; trend of in- and out-migration between Jakarta and its suburbs; and comparison of population and economic growth rates between Jakarta City and Bekasi District.

Urban development of Bekasi District is mostly a result of out-migration from Jakarta. Initially, it resulted from expansion of *kampung*-type housing in the area closest to Jakarta's boundaries, followed by development of real-estate-type housing and industry in more distant areas (Rustiadi and Kitamura, 1998; Rustiadi et al., 1999).

Jakarta City is characterized by a market dualism between highly "modern" areas and vast areas of low-income neighborhoods or urban kampung (McGee, 1991). The Jakarta kampungs are inhabited mainly by rural migrants, mostly absorbed by the informal sectors or margins of the formal sectors of the local economy (Somantri, 1995). Kampungs are usually located adjacent to urban centers. Kampung areas surround each of Jakarta's urban centers, from the core to the much smaller tertiary centers. Systematic demolition of kampungs has been ongoing in Jakarta for many years, particularly in the central part of the city, forcing many of the former inhabitants to move to other areas. Most of the lower classes have moved only short distances (intracity migration), while the middle and upper classes have tended to escape to more distant and less populated areas. Only the middle and upper classes can afford such a move, especially to the suburbs (Somantri, 1995) and they become commuters as a consequence. The poor are prevented from moving into the suburbs by the high cost of suburban housing because of legally required minimum standards for structure size, lot size, and building methods (Stanback, 1991). Consequently, outward migration of the middle and upper classes dominates the process of suburbanization in the Jakarta metropolitan area.

Rapid population growth and economic development in these regions threaten national efforts to preserve prime rice-producing areas. During the last three decades a substantial amount of prime agricultural land in Java has been converted to industrial use or into large-scale residential areas, especially in Jakarta and its suburbs. A rough estimate indicates that between 1981 and 1986 more than 37,000 ha of rice fields in Java and Bali were converted to other uses, of which 44% were nonagricultural. Of these, half (22%) was used for settlement (Nasoetion and Rustiadi, 1990). In Bekasi District, it is estimated that about 2% of existing rice fields are converted every year, of which 60% is used for settlement.

The conversion of rural land to urban use in the suburbs of Jakarta is mainly by land and building development in the private sector, and can be divided into formal and informal private development (Archer, 1994). Real-estate companies carry out most formal development. Informal private development of land, which is not held under a registered title and is therefore outside the land-use regulatory control system, takes place around existing kampung or urban settlements and along public roads. About 70% of the new construction in Jakarta's suburbs is developed informally by the owners themselves.

6. JABOTABEK REGIONAL ZONING

Zoning is a descriptive tool to summarize large datasets in a readily appreciated format and to facilitate description and illustration. In an attempt to describe the spatial pattern of the "in-migration/out-migration" process in Jabotabek region, the region is divided into three zones based on accessibility of subregions to the center of Jakarta City and urbanization level, namely core, zone 1, and zone 2 (Fig. 3.5). The core constitutes all areas within Jakarta City boundaries, zone 1 consists of the most dynamic suburban region, covering the Botabek areas closest to Jakarta, and zone 2 the most remote areas in Jabotabek (peripheral region). Tables 3.6, 3.7, and 3.8 describe some characteristics of the region and their socioeconomic aspects.

Zone 1 is the most dynamic region, characterized by a high population growth rate. The contribution of natural growth to population growth is relatively low (low rate of RNI); the main source of growth is migration (high rate of RSI). The core region is a typical relatively stabile region in which population density has peaked and population growth no longer high but still higher than zone 2. Service activities (including trading, finance, and official activities) and the most educated class are predominant in the core region. Manufacturing activities predominate in zone 1 and agricultural activities in zone 2.

Suburbanization and commuting show a strong correlation since most of the population living in suburb areas are out-migrants or people who conduct business in Jakarta City. According to a survey conducted by Central Bureau of Statistics in 1991, about 96.0% of the population living in Jakarta worked in Jakarta. The percentage of Botabek inhabitants working in Jakarta City and suburbs is 47.8% and 50.4% for Bogor District, 55.5% and 43.5% for Tangerang District and 59.8% and 37.8% for Bekasi.

7. CONCLUDING REMARKS

The spatial pattern of urbanization and suburbanization processes in Jabotabek region has been described. The center (Core) of the metropolis tends to be the center of service sector activities that shifts settlement areas containing small proportion of agricultural land use and characterized by negative net migration. The first layer (Zone 1) or transitional zone is becoming the most dynamic area, characterized by

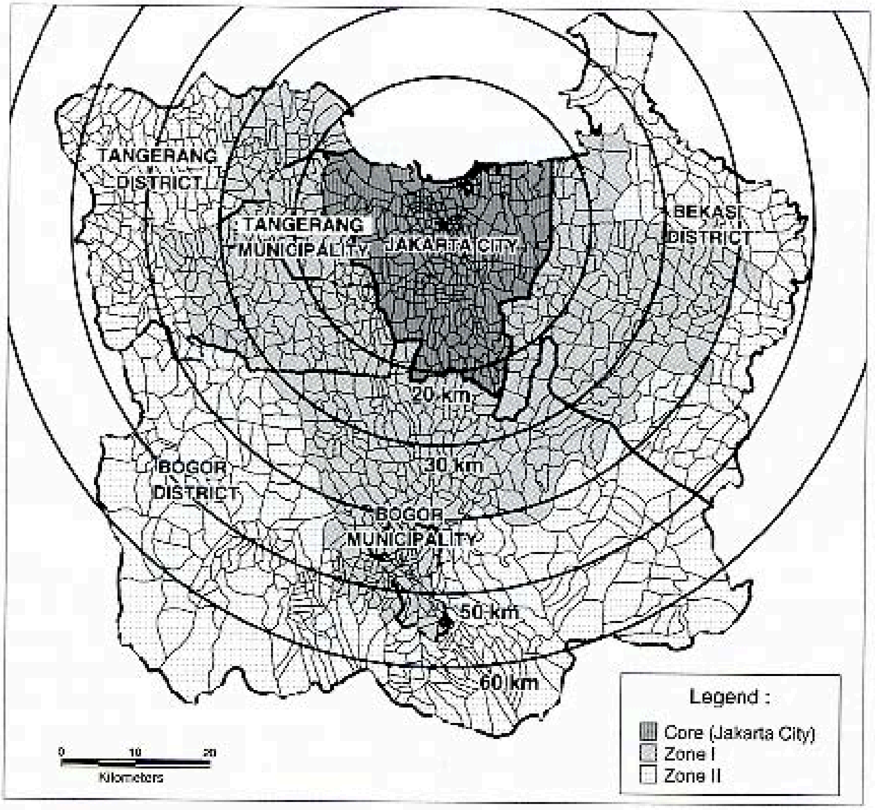

Fig. 3.5 Three main zones of Jabotabek Region: Core, Zone 1, and Zone 2.

Table 3.6

Basic population characteristics of Core, Zone 1, and Zone 2 of Jabotabek region, 1990 and 1995

Indicator	*Core*	*Zone 1*	*Zone 2*	*Total*
Total Population				
1990	8,222,515	5,433,670	3,442,268	17,098,453
1995	9,112,652	7,276,135	3,770,868	20,159,655
% Population				
1990	48.0	32.0	20.0	100.0
1995	45.0	36.0	19.0	100.0
Annual Population Growth Rate (%)	2.1	6.0	1.8	3.4
Total Area (km^2)	643.1	2,405.5	3,606.3	6,654.9
% Total Area (km^2)	9.7	36.2	54.2	100.0

(Contd.)

Indicator	Core	Zone 1	Zone 2	Total
Population Density (pop/km^2)				
1990	12,785	2,259	955	15,998
1995	14,169	3,025	1,046	18,239
Rate of Natural Increase (RNI) 1990–1995 (%)	16.5	17.1	20.5	17.5
Rate of Social Increase (RSI) 1990–1995 (%)	4.1	**40.9**	2.3	15.4
Number of Migrants	575,208	730,951	110,021	1,416,180
% of Migrants to population	6.3	10	2.9	7

Table 3.7

Distribution of economic activities of Core, Zone 1, and Zone 2 of Jabotabek region in 1995

Indicator	Core	Zone 1	Zone 2	Total
A. Type of Activity				
In labor force	48.6	**50.4**	48.9	49.3
1. Employed	42.8	**45.5**	42.2	43.6
2. Unemployed	5.8	4.9	6.7	5.7
Not in labor force	51.4	49.6	51.1	50.7
B. Main Industry				
1. Agriculture	0.8	3.3	**27.4**	6.1
2. Manufacturing	17.7	**27.4**	16.6	21.2
3. Trade	**28.2**	27.8	23.4	27.3
4. Finance	**7.4**	1.7	0.4	4.1
5. Service	**31.9**	22.8	15.4	25.7
6. Others	6.7	7.7	9.4	7.5
C. Main Occupation				
1. Professional	**8.2**	6.6	2.6	6.7
2. Administrative	**2.1**	1.3	0.3	1.5
3. Clerical	**16.8**	8.5	3.5	11.5
4. Sales	**25.8**	27.0	21.7	25.6
5. Services	**14.8**	8.5	6.3	11.0
6. Agricultural	0.9	3.6	**27.8**	6.3
7. Production	30.2	**43.6**	37.8	36.5
8. Others	**1.2**	0.9	0.0	0.9

Table 3.8

Spatial distribution of educational performance of population in Core, Zone 1 and Zone 2 in Jabotabek region in 1995

Indicator	*Core*	*Zone 1*	*Zone 2*	*Total*
School Attendance 1995 (%)				
a. Has not/does not attend school	4.5	10.4	**20.5**	9.5
b. Attending school	**30.6**	28.4	26.1	29.0
c. No longer attending	**64.9**	61.2	53.4	61.5
Educational Attainment (%)				
a. Never attended/did not complete Primary school 1995	23.5	41.0	**61.9**	34.6
b. Primary school	24.7	26.8	**26.9**	25.8
c. Junior High School	**18.4**	15.6	6.8	15.3
d. High School	**26.4**	19.0	4.1	19.7
e. Academy/University	**7.0**	3.5	0.3	4.6
Illiteracy level (%) 1995	4.5	10.8	**19.7**	9.5

Table 3.9

Number and percentage of recent out-migration flow from Jakarta to its suburbs (Botabek region) during 1990–1995

Place of origin 5 years ago	*Unit*	*Present place of origin in Botabek region*					
		Bogor District	*Bekasi District*	*Tangerang District*	*Bogor Munic*	*Tangera-ng Munic*	*Total*
South Jakarta	Migrants	136,337	51,385	70,968	2,394	31,505	292,589
	% Migrants	4.016	1.513	2.090	0.071	0.928	8.618
East Jakarta	Migrants	44,702	168,511	15,344	2,850	9,843	241,250
	% Migrants	1.317	4.963	0.452	0.084	0.290	7.106
Central Jakarta	Migrants	88,242	128,742	33,392	3,306	47,511	301,193
	% Migrants	2.599	3.792	0.984	0.097	1.399	8.871
West Jakarta	Migrants	21,146	18,256	41,708	1,710	55,377	138,197
	% Migrants	0.623	0.538	1.228	0.050	1.631	4.070
North Jakarta	Migrants	23,305	39,042	18,760	1,710	8,316	91,133
	% Migrants	0.686	1.150	0.553	0.050	0.245	2.684
Jakarta City	Migrants	313,732	405,936	180,172	11,970	152,552	1,064,362
	% Migrants	9.241	11.956	5.307	0.353	4.493	31.349
	Migrants/km^2	213.877	129.961	1,764.316	64.062	134.720	2,306.938
	Migrants/1000 pop	84.293	149.232	74.405	18.475	112.999	439.404

(Contd.)

(Table 3.9 Contd.)

Place of origin 5 years ago	Unit	Present place of origin in Botabek region					
		Bogor District	Bekasi District	Tangerang District	Bogor Munic	Tangerang Munic	Total
Other Provinces	Migrants	643,474	744,084	428,304	75,924	438,922	2,330,708
	% Migrants	18.953	21.916	12.615	2.236	12.928	68.648
	Migrants/km^2	438.668	238.220	4,194.125	406.337	387.617	5,664.967
	Migrants/1000 pop	172.888	199.919	115.076	20.399	117.929	626.211
All Migrants	Migrants	957,206	1,150,120	608,476	87,894	591,474	3,395,170
	% Migrants	28.193	33.875	17.922	2.589	17.421	100.000
	Migrants/km^2	652.546	368.214	5,958.441	470.399	522.337	7,971.937
	Migrants/1000 pop	257.180	422.811	251.281	135.657	438.120	1,505.050

high population growth, production and manufacturing activities, mixed land uses, and main destination for migration. The second layer, the remote region Zone 2, is characterized by agricultural activities (agricultural land use predominated areas), relatively low income, and lower educational level of inhabitants.

References

Archer, R.W. 1994. Urban land consolidation for metropolitan Jakarta expansion, 1999–2010. Habitat International, 18(4); 317–52.

Drewett, D. and Rossi, A. 1981. General urbanization trends in Western Europe. In: Dynamics of Urban Development. Van den Berg, L., Klaasen, L.H., Molle, W.T.M. and Paelinck, J.H.P. (Eds.). Gower, Abingdon, UK.

Jansen J.C. and Paelinck, J.H.P. 1981. The urbanization phenomenon in the process of development: some statistical evidence. In: Dynamics of Urban Development. Van den Berg, L., Klaasen, L.H., Molle, W.T.M., and Paelinck, J.H.P. (eds.). Gower, Abingdon, UK.

Kaida, Y. 1992. Integrated rural development and land use. In: Proc. Int. Symp.: Rural Land Use in Asian Countries, October 7–8, 1992. Japan National Committee for Rural Planning, pp. 220–221.

Kammier, D. and Swan, O. (eds.). 1984. Equity with Growth? Planning Perspectives for Small Towns in Developing Countries. Asian Institute of Technology, Bangkok.

Kitamura, T. and Rustiadi, E. 1997. Indonesia Model. Center for Global Environmental Research. ISSN 1341–4356. CGER-1027-'97.

Leaf, M. 1994. The suburbanization of Jakarta. A concurrence of economics and ideology. TWPR, 16(4): 341–355.

Mantra, Ida Bagus. 1990. Urbanization in Indonesia. UNCRD working paper No. 90-3, Nagoya, Japan.

Matheur, O. (ed.). 1982. The Role of Small Cities in National Development. UNCRD, Nagoya, Japan.

Mazumdar, D. 1987. Rural-urban migration in developing countries. In Handbook of Regional Economics, vol. 2, pp. 1097–1128.

McGee, T.G. 1987. Urbanisasi or Kotadesasi: The Emergence of New Regions of Economic Interaction in Asia. Honolulu Environment and Policy Institute, pp. 93–108.

McGee, T.G. 1991. Southeast Asian urbanization: Three decades of changes. Prisma, 51: 2–16.

Nasoetion, L.I. and Rustiadi, E. 1990. 'Masalah Konversi Lahan Sawah ke Penggunaan Non-sawah, Fokus Jawa-Bali' [The problem of land use conversion from rice field, case of Java-Bali], Seminar Rural Development and Land Problems, February 13–15. PAU Social Study of Gajahmada University, Yogyakarta, Indonesia.

Rustiadi, E. 1997. Land-use Change in the Suburb: Case of Bekasi District. Center for Global Environmental Research, ISSN 1341–4356. CGER-1027-'97.

Rustiadi, E. and Kitamura, T. 1998. Analysis of land use changes in city suburbs. J. Rural Planning Assoc., 17(1): 20-31.

Rustiadi, E., Mizuno, K., and Kobayashi, S. 1999. Measuring spatial pattern of suburbanization process. J. Rural Planning Assoc., 18(1): 31–42.

Somantri, G.R. 1995. Migration within cities: Study of socio-economic processes, intra-city migration and grass-roots politics in Jakarta. Ph.D. Diss., Bielefeld University, Bielefeld, Germany.

Stanback, T.M. Jr. 1991. The New Suburbanization, Westview Press, Inc., Colorado, USA.